

Creating a Community Radiology Division: An Academic Radiology Department's 3-Year Experience

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DESCRIPTION OF THE PROBLEM

The US health care system is evolving rapidly with an emphasis on value-based care and management of populations. There is an increased expectation for improved patient outcome and service. As a response to these changes, academic health care systems are seeking care coordination and system integration. For radiology practices, this evolution has resulted in mergers and partnerships between traditional academic radiology departments and community practices [1-4].

In 2014, a large academic radiology department in the Southeastern United States integrated an existing community practice into a new Division of Community Radiology. The division was created to meet both the inpatient and outpatient imaging needs of a large neighboring city. This brief communication describes our experience as one example of an academic radiology department's effort to develop an effective community radiology strategy.

Our health system had previously purchased a community hospital in a large neighboring city. The acquisition was part of a health system strategic plan to expand services in the city's rapidly growing health care market [5]. Starting in the mid-2000s, the health

system began to transition the 186-bed community hospital from community medicine to subspecialty medicine with a focus on oncology, neuroscience, and orthopedics.

The community hospital was historically served by a six-member, hospital-based radiology practice. As the hospital moved to more subspecialized care over the ensuing years, however, the legacy group had difficulty providing sufficiently subspecialized imaging interpretations. For example, oncologists demanded disease-focused staging information. With the opening of a stroke center, neurosurgeons required increased neuroradiology expertise and availability. Breast surgeons insisted on fellowship-trained breast imagers for consultations.

In interventional radiology, the existing radiology practice could not meet the hospital's need for coverage and expanded services. Because of the lack of 24-7 interventional coverage, the hospital was forced to limit inter-hospital transfers of patients with bowel hemorrhage. Urologists were reluctant to perform partial nephrectomies without interventional radiology backup. New oncologists demanded increasingly complex biopsies and new therapeutic interventions.

There was also a health system need for an ambulatory radiology strategy and presence. To compete in

the neighboring city's market, the health system's strategic plan called for a rapid outpatient expansion with dozens of new primary care and specialty providers located within multiple new distributed facilities. This provider growth would necessitate a concomitant substantial expansion of outpatient imaging services.

Our academic radiology department has long been committed to its missions of teaching and research, but it has not historically been focused on clinical growth in the surrounding communities. The shifting health system goals and local inpatient clinical pressures made it clear that the academic radiology department needed a community strategy.

WHAT WAS DONE

The department's community strategy was informed by the unique advantages and challenges it faced. As an advantage, the community hospital was wholly owned by and aligned with the health system. The existing radiology practice was respected but small, based solely at the community hospital, and owned few assets. The community hospital shared a PACS and electronic medical record with the main campus. All imaging equipment was latest generation; no upgrades were required. Technical staff members

were under the supervision of the health system leadership.

Despite these advantages, there were also challenges. To be successful in the competitive community environment, the academic radiology department needed to meet community expectations for prompt turnaround times, responsiveness, and radiologist availability. The department was also challenged to demonstrate flexibility and adaptability to suit the more dynamic marketplace. If the existing hospital radiology practice was to be integrated, the department would need to accept new community colleagues. The new faculty might be threatened by a loss of autonomy, a change in their compensation model, and a heightened expectation for subspecialty expertise.

The first and perhaps most important step in the creation of the community division was the establishment of an understanding between the radiology department chair, the community hospital leadership, and the academic health system leadership that change was needed. Having this understanding, the chair then accepted the hospital contract to provide imaging services, thereby displacing the existing practice.

The radiology chair in 2014 formally organized a Division of Community Radiology and offered clinical faculty positions within that division to the legacy radiologists. The Community Division faculty compensation model was based on the existing academic pay structure (base salary + productivity bonus) but adjusted to reflect the greater call burden, relative value unit expectations, and local private practice market. The faculty members were assigned a nonregular rank clinical tract in which research was not an expectation; teaching

opportunities existed but were not mandated.

The academic department's goals for its community strategy were 3-fold. The first goal was to increase the level of diagnostic subspecialization and clinical expertise at the community hospital. The second goal was to standardize imaging quality by standardizing protocols, expanding services, and centralizing scheduling. Finally, it was imperative to maintain the existing level of responsiveness and availability established by the legacy radiology group.

To increase subspecialization, the department leveraged the common PACS system to distribute outpatient CT and MR examinations among the specialty divisions of the academic department. Outpatient brain MRIs would be interpreted by the Neuroradiology Division; outpatient shoulder MRIs would be interpreted by the Musculoskeletal Division; and so on. All nuclear medicine examinations would be protocolled and interpreted by the Division of Nuclear Medicine, which was a practical consideration because there were no fellowship-trained nuclear medicine faculty members in the Community Division. Because teleradiology is less useful for interventional radiology and breast imaging, those specialties would be developed locally as part of the new Community Division.

To standardize quality, the academic divisions were asked to design systemwide protocols. Some deviation in protocols was permitted to facilitate variations in local practice; for example, temporal bone CT protocols were adjusted at the request of community skull-base surgeons. Safety decisions were made locally. For example, all decisions for all community patients regarding contrast material adverse reactions, contrast material administration in

patients with renal impairment, and metallic implants for MRI were made by the on-site community radiologists, regardless of the ultimate destination of the examination for interpretation. Policies governing those decisions, however, were drafted at a departmental level. Finally, communication was enhanced by a new approach to the routing of referring provider phone calls. Incoming phone calls from community-referring physicians were now routed, when appropriate, to the interpreting academic divisional reading rooms. This change in communications required the hiring and training of additional administrative staff.

To further improve clinical quality, integrate the new community faculty, and standardize interpretations, the new Community Division faculty members were asked to participate in the academic divisional work. All community faculty members (except breast imagers and interventional radiologists) devoted 40% of their clinical time working alongside their subspecialty academic colleagues on the main campus. This work helped compensate the academic divisions for the incremental community volumes arriving via teleradiology. The presence of the community faculty also allowed for knowledge sharing and relationship building. The community faculty gained an increased level of clinical sophistication through their immersion in the teaching environment; the academic faculty members learned to respect and accept their new community colleagues.

To maintain local responsiveness and availability for consultations, the community strategy called for all inpatient and emergency department CT and MRI examinations to be interpreted locally by the

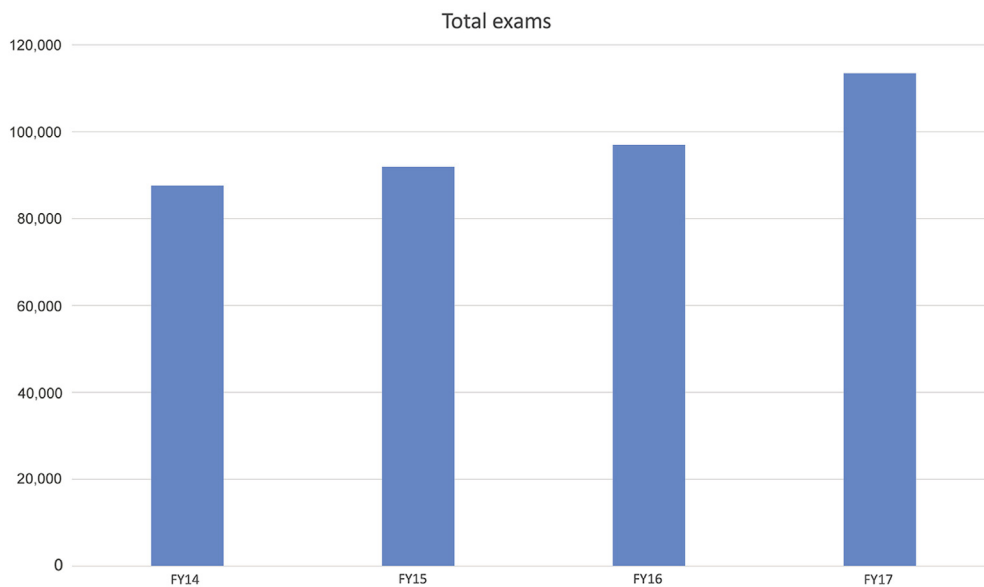


Fig 1. Total radiology community examinations for fiscal year (FY) 2014 (FY14), FY 2015 (FY15), FY 2016 (FY16), and FY 2017 (FY17). Volumes across all modalities increased 30%.

new Community Division. All radiography and sonography, including almost all imaging studies referred by the community primary care and urgent care facilities, were interpreted locally.

OUTCOMES

The Community Division has now been operational for over 3 years. Community Division volume growth during that time has been impressive. Volume across all imaging modalities increased 30% over 3 years (fiscal year [FY] 2015 = 5%, FY 2016 = 6%, FY 2017 = 17%) (Fig. 1). CT examination volumes rose 54% (FY 2015 = 16%, FY 2016 = 15%, FY 2017 = 14%) (Fig. 2). MRI examination volumes increased 58% (FY 2015 = 18%, FY 2016 = 20%, FY 2017 = 12%) (Fig. 2).

The highest initial priority for community service expansion was interventional radiology. To complement the existing single interventional radiologist, two additional interventional faculty members were hired along with an interventional radiology physician

assistant. Eighteen months after integration, 24-7 interventional call was established, allowing urologists to perform partial nephrectomies and the community hospital to accept transfer of emergency interventional patients. The new interventional radiologists brought cutting-edge interventional oncology skills, including Y-90 and

microwave tumor ablations. The interventional radiology physician assistant was critical for establishing a weekly interventional radiology clinic. Community interventional procedural volumes exploded by over 500% during these first 3 years (FY 2015 = 303%, FY 2016 = 19%, FY 2017 = 37%) (Fig. 2).

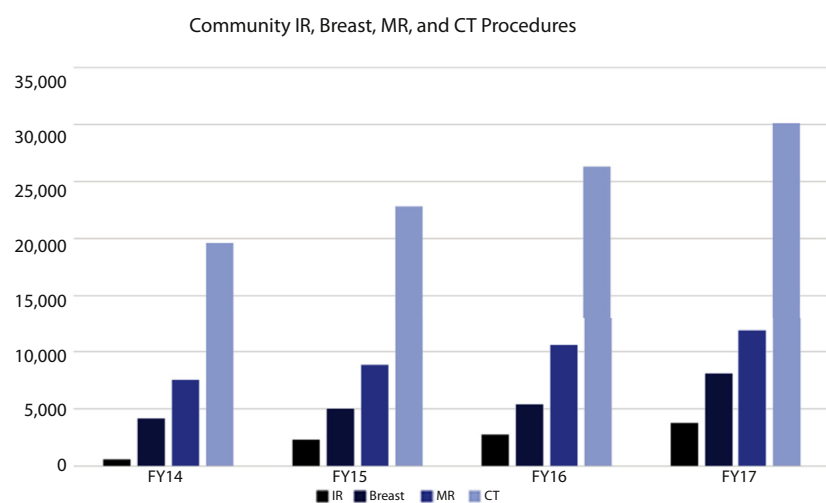


Fig 2. Volumes for community interventional radiology, breast imaging, MR, and CT procedures for FY 2014 (FY14), FY 2015 (FY15), FY 2016 (FY16), and FY 2017 (FY17). During these 3 years, volumes increased 556% in interventional radiology, 95% in breast imaging, 58% in MRI, and 54% in CT.

Another important early priority for the Community Division was to expand its community breast imaging program. To complement the existing solo breast imager, three additional fellowship-trained breast imagers were hired. In 2016, this emerging breast imaging team helped open a multidisciplinary women's cancer center staffed with a full-time breast imager. Community Division breast imaging volume growth was an impressive 95% over 3 years (FY 2015 = 20%, FY 2016 = 8%, FY 2017 = 50%) (Fig. 2).

The creation of the Community Division has been viewed both internally and externally as an operational success. Perhaps most importantly, the significant cultural transformation within the community practice and the academic radiology department has also been a success. New workflows and protocols have been accepted on both campuses. The community faculty members have all transitioned to their new job requirements without turnover or attrition. The academic faculty members have accepted their new community colleagues.

The transition has not been without challenges. The early days were marked by some degree of confusion and trepidation about new roles, new responsibilities, and new teammates. The challenges were met with daily phone calls and in-person visits between the campuses. Early in the transition, divisional leadership was especially visible in reading rooms and

technologist areas to answer questions. When misunderstandings inevitably arose, departmental leadership engaged to sort through the issues and guide the teams to a resolution.

The Community Division has brought several unexpected benefits to the department. The Community Division contributes extra faculty to help staff the main campus during major academic meetings. When the Musculoskeletal Division recently experienced a temporary staffing shortage, the Community Division increased its clinical contribution to the Musculoskeletal Division at the expense of its contribution to the Abdominal and Neuroradiology Divisions. In this creative and novel way, the Abdominal and Neuroradiology Divisions were able to help their colleagues in musculoskeletal (via the Community Division). This degree of intradepartmental flexibility was not previously possible. The Community Division has also been a financial success for the academic department, helping to sustain its teaching and research missions.

The future will bring continued growth for the Community Division. The community hospital has planned a facility expansion that will bring greater inpatient volumes and allow the Community Division to grow its physical footprint. Ambulatory growth will be even more impressive in the future. According to its strategic plan, the health system will soon open

multiple multispecialty facilities, each of which will contain imaging. The Community Division will staff these facilities. The community staffing plan therefore calls for multiple additional faculty members with an emphasis on breast imaging.

The Community Division will continue to expand but will remain focused on providing high-quality and responsive subspecialty radiology in the community setting. The division will further build its interventional and breast imaging groups and continue to leverage its close integration with the academic department via teleradiology and physician exchange. The division's success will serve as a template for the academic department's future growth in neighboring communities.

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